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Emotional Intelligence: A Bibliometric Analysis and Implication for Future Research

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Abstract

Emotional Intelligence is a growing field that can be traced from the research publishing from the year when Salovey & Mayer coined EI terminology. However, this field is still lacking synthesizing, chronological, and systematic studies focusing on how EI field has flourished. The objective of current study was to extend the state-of-the-art research work in the field of EI, based on bibliometric research studies published during 2000-2020. The result of the study depicted under subsequent perspectives: growth trend of EI, influential institutions, countries, articles, authors, keywords, and journals, and international collaborations. A publication growth in EI research gradually increase but a rapid increase in publication was found from 2017-2019. As a total, 714-research publications were produced in 579 journals by 1924 authors, which were affiliated with 896 institutions listed in Web of Science (WOS). The top 10 research productive countries, institutions, and authors were analyzed herein. A great number of articles from developed countries were compared in terms of citations. Based on 3-factor and keywords analysis it was concluded that EI, emotion, affective computing, artificial intelligence have attracted

extensive research community during the last decade. The development of a global collaboration culture can exceed EI research publication. The implication for social support by providing EI training and publisher offer Web of Science (WOS) indexed journals that deal solely with the core idea to facilitate future EI studies.

Keywords: Emotional intelligence, leadership, bibliometric analysis, citation analysis, author keywords, biblioshiny

1. Introduction:

Emotional intelligence (EI) is widely regarded as a vital skill that aids in the improvement of communication, management, problem-solving, and interpersonal relationships in the workplace. Following the publication of Danial Goleman's book "Emotional Intelligence: Why It Can Matter More Than IQ." in 1995, the idea of EI drew widespread interest from the public, including human resource managers and business leaders. According to research, EI is thought to influence how well employees interact with their colleagues, as well as how they manage stress and conflict.

EI is not a new terminology. It is revolving around research for three decades where first coined by Peter Salavoy in 1990. Bradberry and Greaves (2009, p. 17) define emotional intelligence as an ability to identify and comprehend emotions in one`s own and others, and by using this competency individual can manage behavior and relationships. It’s a skill with which an individual expresses, reasons, perceives manages his/her own and others' emotions (Palmer et al., 2008). EI not just about a single act or emotion, it is a combination of many emotions that make relationships strong either social or professionals. EI is an excellent behavioral instrument but its emerging knowledge in the field of librarianship. Some studies focused students leaning with the help of EI assessment framework (Jan & Anwar, 2019; Matteson, 2014).

Salovey and Mayer's (1990) influential article on EI gives a base to authors to develop EI models. Later on, many research studies offer EI evaluation model for example (1) EQ-i Bar-on emotional-social intelligence (ESI) competencies model (Bar-On, 1997), (2) EI performance model (Goleman, 2003), (3) EI ability model (Mayer et al., 2008), and (4) Wong and Law Emotional Intelligence Scale (WLEIS). Where Krishnan, divide EI models into main three divisions, (1) Trait Model, (2) Mixed Models, and (3) Ability Models (Krishnan et al., 2020).

Previous studies reported that EI influences individual and organization productivity. EI is a critical and crucial factor in measuring individual and organizational performance (Malik, 2021). Dincer and Orhan (2012) argued use of EI enable employees to develop, inaugurate and implement new idea at job place. World Economic Forums Future of Jobs Reports listed EI as one of the top skills that needed employees in 2020.

EI being a major fact-affecting employee's development, creativity, and innovative behavior. Keeping because of the trend, the literature on EI is growing exponentially where limited bibliometric analysis available on EI. Bibliometric is a subfield of library and information science that deals with statistical and mathematical techniques that examine articles, books, and other research-related resources contribution Pritchard (1969).

Different authors have performed bibliometric analysis to determine the trends of EI. Kattimani (2012) conducted a bibliometric study on EI, which main objective was to identify the Indian researcher's contribution to EI, retrieved data from the PsycINFO database. Akbey (2018) conducted a bibliometric study on education-related EI, data collected from Web of Science (WOS), year filter was 1996-2018. Another recent study presents a global research trend on EI for the period of (1966-2018), bibliographic data retrieve from Scopus database, VOS viewer

software used to visualize the bibliographic data. The study checked the most research producing journal on the field of EI, highly cited articles, most research producing countries, famous authors, and research area. Campos et al. (2018) argued that organization distinguishes staff with behavior and social skills among all EI is consider as prime skill thus bibliometric technique used to find research trend of EI in the field of management and leadership by obtained data from WOS that published between 1980-2018.

In the light of previous studies conducted on EI, there is a chance to track and identify the current development in the field of human EI competence, using highly relevant keywords from the most reliable worldwide abstracting and indexing database that is Web of Science (WOS). Some areas missed to explore by previous studies, the current study took the opportunity to fill the missing gap and present analysis by visualization of statistics.

The main objective of the study was to amalgamate the state-of-the-art research on EI, current study collected published articles data from WOS during 1970-2021. The study result explains under such perspective: yearly growth of publishing articles on EI, most influential countries, articles, authors, institutions, keywords (5 years' analysis), research journals, collaborations, and authorship patterns.

The vast field of EI has the potential to conduct bibliometric analysis from different prospects, current study used a comprehensive keywords search strategy to filled the research gap. Besides, as of earlier bibliometric studies, the scope of the study has been extended by considering all academic resources and materials (articles, books, conferences, books chapters, etc.) with no restriction of languages, included both qualitative and quantitative academic studies in the field of EI by extracting citation count, multiple factor analysis (country, organizations, author, source).

The current aim of the study is to identify and evaluate EI publishing patterns and trends from 1970-2021 by considering the most productive authors, countries, organizations, key journals, collaborative networks, authorship patterns, 3-factor analysis.

The following research questions have been considered to answer the research objective:

1. What are the publishing trends in EI from 2000-2020?
2. What are the top EI research publishing journals?
3. Which of the authors, journals, and organizations are most productive in EI?
4. What are the dominant research methods used for studying EI?
5. What are the collaborative patterns and authorship of research in EI?
6. Which keywords are used in EI research?

2. Methodology:

Bibliometric is a statistical investigation, deal with a quantitative approach (Makar & Trost, 2018) (Wallace & Van Fleet, 2012) that access the trend of literally working on a particular field and conclude the research outcomes (Blakeman, 2018). The bibliometric technique has been adopted and widely used by different fields of knowledge, mostly used by the medical science field (Hart & Perlis, 2021). WOS is one of the biggest world-renowned database, famous for providing abstracting and indexing services; universities around the world acknowledge their researchers to publish in WOS indexed journals (Diem & Wolter, 2013). Data retrieved from WOS, employed title search “Human Emotional Intelligence” and it generates 786 academic records. The data was retrieved and download in plain text on April 03, 2021, refine by document type which consists of (i) article, (ii) proceeding paper, (iii) review, (iv) book chapter, (v) early access (vi) books. The bibliometric research study presents network

analysis, publishing trend, most productive author, journals, and countries (Su et al., 2019), author keyword, countries collaboration by utilizing HistCite, Bibexcel, Scientopy, biblioshiny and VOSviewer software, for the literature published during 2000-2021.

The quantitative approach gives the opportunity to statistically analyze the structure of EI literature and draw a conclusion by the interconnection of various items with attributes, co-citation, coupling maps and keywords, country collaboration. The research study depicts the publication growth throughout 2000-2020, top research producing countries, institutions, journals, highly cited articles, 3 factory analysis of keywords, authors and countries where network visualization, mapping, show clusters, nodes, identify missing gaps of the EI (Islam et al., 2021; Rajeswari et al., 2021).

Data Source and Search Strategy

The data from WOS was retrieved on April 03, 2021, as a result of a search query, the database provides 786 bibliographic records later 30 records were excluded by applying document type and year filter, 42 records were excluded after review title and abstract. A four-phase search and selection criteria were framed in Figure 1 (Khan et al., 2020). The query string was formulated: TS=("Human" AND "Emotional intelligence"), refined by: document types: (article OR early access OR book chapter OR proceedings paper OR review) AND [excluding] document types: (correction) AND publication years: (2020 OR 2019 OR 2018 OR 2017 OR 2016 OR 2015 OR 2014 OR 2013 OR 2012 OR 2011 OR 2010 OR 2009 OR 2008 OR 2007 OR 2006 OR 2005 OR 2004 OR 2003 OR 2002 OR 2001 OR 2000)

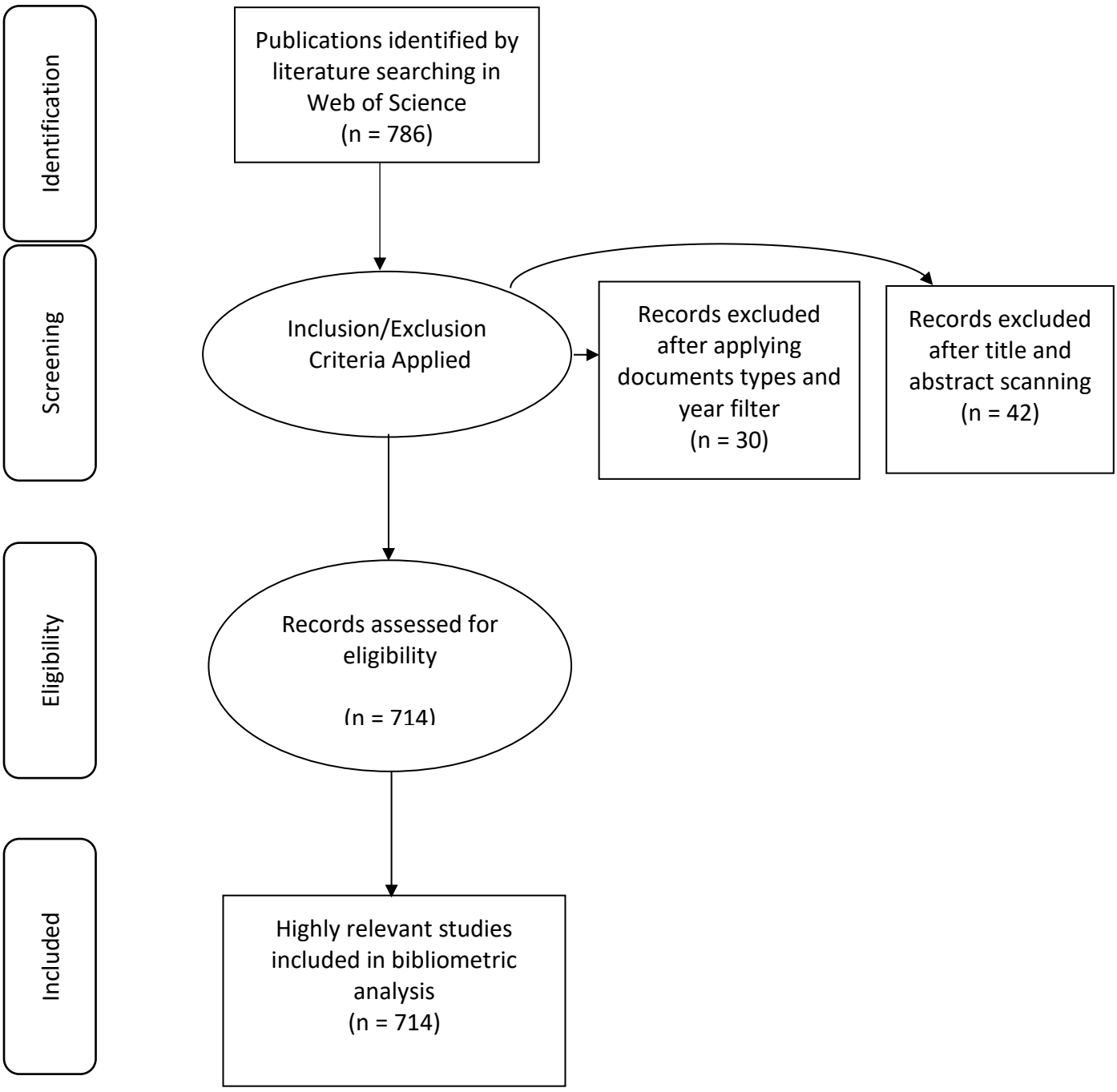


Fig.1. Four-phase flow diagram of data extraction and filtration process of EI Literature

3. Data Analysis:

This session provides a comprehensive analysis of the bibliometric study. After sort-out, each record and screening of each bibliometric record by reading title and abstract, 714 unique records verified used for current studies. These articles and records were published in 579 journals, written 1924 authors affiliated 896 institutions from 74 countries. These research publications received 29782 citations. The document type contribution was articles 428 (60%), proceedings paper 238 (33.4%), review 32 (4.5%), article; early access 8 (1.1%), article; proceedings paper 4 (0.6), book chapter 3 (0.3) and Book Chapter 1 (0.1).

3.1 Total Publication Growth trend

Figure 2 illustrates year-wise research publication and citation on EI from 2000-2020. The research publishing trend indicates a significantly increasing from 2000 till 2017 with little fluctuation where the boom in publication on EI has been observed from 2017 to 2019. The most research productive year on EI was 2019 in which 1168 research documents were published. The citation count is variant with highest received in 2001 and lowest receive in 2020.

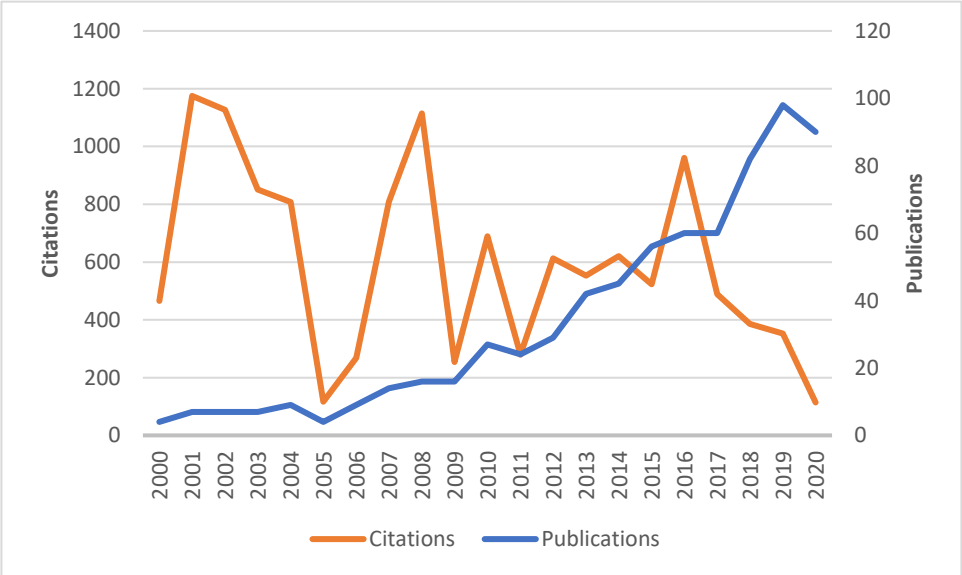


Fig.2. Publication and citations trend on Emotional Intelligence research (2000-2020)

3.2 Top ten publishing countries

The top ten research producing countries in EI enlisted in table 1. United States of America (USA) is the only country that has over 150 publications and two countries have over 50 publications. The USA is the most research producing county with 157 publications and 6752 citations followed by Spain contributed 54 with 578 citations. The USA has the highest citation impact (43.01) followed by United Kingdom (36.32). India stands at the tenth level of the list with only 25 publications with 52 citations. Romania produced 30 research articles and received 38 citations with the least citation impact of 1.27.

Table 1: Top ten persuasive countries in EI Research

Country	TP	TC	Citation Impact
USA	157	6752	43.01
Spain	54	578	10.70
UK	53	1925	36.32
China	48	561	11.69
Australia	41	953	23.24
Russia	36	91	2.53
Malaysia	34	44	1.29
Romania	30	38	1.27
Italy	28	259	9.25
India	25	52	2.08

TP = total publication, TC = total citation

Figure 3 highlights the top ten countries' contribution in the year 2001-2020 and also mentioned the last two years of countries contribution. The percentage of documents published during 2019-2020 indicated that Spain, UK, and Italy strengthen themselves in terms of the total publication. Where Romania and China publication decreased.

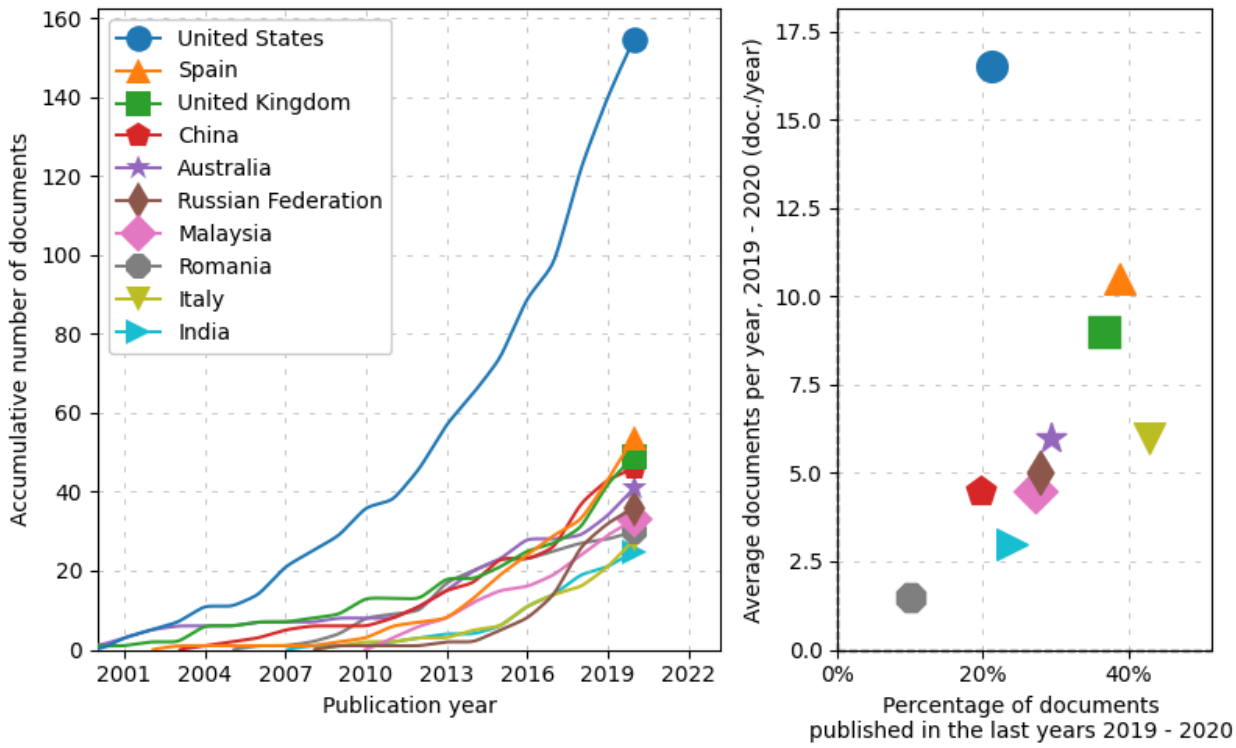


Fig.3. Top ten highly publishing countries and percentage of documents published during 2019-2020.

3.3 Most research contributing institutions

The top ten research contributing institution in EI shown in table 2 which indicated that George Mason University, USA is at top and the only university published over 10 research publication (n=13) and received citations 112 followed by Islamic Azad University produced 9

publications and received 16 citations. Massachusetts Institute of Technology, USA and University College London, England with 6 research publications received 1127 citations and 718 respectively. Islamic Azad University, Iran received the lowest TC and citation impact.

Table 2 Top Ten Highly Productive Institution

Affiliations and Country	TP	TC	Citation Impact
George Mason University, USA	13	112	8.62
Islamic Azad University, Iran	9	16	1.78
University Illinois, USA	8	369	46.13
University Haifa, Israel	8	190	23.75
National Research Nuclear University, Russia	7	18	2.57
University College London, England	6	718	119.67
The University of Sydney, Australia	6	187	31.17
Massachusetts Institute of Technology, USA	6	1127	187.83
University of Belgrade, Serbia	6	30	5.00
University Malaga, Spain	6	96	16.00

TP = total publication, TC = total citation

3.4 Highly cited articles on EI

Table 3 compiled a list of the top 10 research articles on EI. The articles were ranked according to citations received (Krishnan et al., 2020). It can be observed from table 3 that all articles received more than 200 citations and their publication is ranging between 2000 to 2016.

The top research article entitled ‘Toward machine emotional intelligence: analysis of affective physiological state’ by Picard rw published in IEEE Transactions On Pattern Analysis and Machine Intelligence in the year 2001 received 1181 citations and TC per year count is 50.57 followed by article of Mayer jd (2008) with 818 citations. The least citations were received by Kusluvan S (2010) with 220 citations.

Table 3 Most global cited documents on EI

Title	Author	Source	Year	TC per year	TC
Toward machine emotional intelligence: analysis of affective physiological state	Picard rw	IEEE Transactions On Pattern Analysis And Machine Intelligence	2001	50.57	1181
Human abilities: emotional intelligence	Mayer jd	Annual Review Of Psychology	2008	58.42	818
Positive organizational behavior: developing and managing psychological strengths	Luthans f	Academy Of Management Executive	2002	27.85	557
On the dimensional structure of emotional intelligence	Petrides kv	Personality And Individual Differences	2000	20.04	441
Toward an affect-sensitive multimodal human-computer interaction	Pantic m	Proceedings Of The IEEE	2003	22.89	435
A critical review and best-practice recommendations for control variable usage	Bernerth jb	Personnel Psychology	2016	71.16	427
Awakening employee creativity: the role of leader emotional intelligence	Zhou j	Leadership Quarterly	2003	13.1	249
Emotion in the workplace: the new challenge for managers	Ashkanasy nm	Academy Of Management Executive	2002	12.4	248

Emotional intelligence	Earley pc	Harvard Business Review	2004	12.55	226
The human dimension a review of human resources management issues in the tourism and hospitality industry	Kusluvan s	Cornell Hospitality Quarterly	2010	18.33	220

TC = total citation

3.5 Dominant research methods used by highly cited articles

The top 20 highly cited research articles were chosen to analyze the methodology adopted by researchers. As shown in Table 4, research studies on EI divided into two groups, the first group name as "emerging EI" (2000-2003), where different ability and trait EI models were introduced, and the second was "mature EI" (2004-2020) (Sassetti et al., 2018). Quantitative and qualitative methods embraced in both periods with 40% of research published during 2000-2003 and 60% published during 2004-2020. During the emerging EI period, 63% of quantitative, 26% qualitative, and 13% mixed-method research were published. In the mature EI period, grounded theory was more productive over 50% of research studies adopted it, 25% experimental, 17% survey, and 8% ethnography respectively.

Table 4 articles research method

Mixed methods	2000-2003		2004-2020	
Sequential	0	0%	0	0%
Concurrent	1	13%	0	0%
Qualitative				
Case study	0	0%	0	0%
Grounded theory	1	13%	6	50%

Ethnography	0	0%	1	8%
Narrative	1	13%	0	0%
Phenomenal	0	0%	0	0%
Action Research	0	0%	0	0%
Quantitative				
Survey	3	38%	2	17%
Experimental	2	25%	3	25%
Grand total	8	40%	12	60%

3.6 Most productive authors and their affiliation

The list of most productive authors and their affiliation in EI is compiled in Table 5. The author's publication range varies from four to six. The author Samsonovich Av affiliated with George Mason University, USA emerged as a top author with 13 publications, 65 total citations. The author's first year of publication range varies from 2001 to 2017. Roberts Ed received the highest citation 959 with only 4 publications and his first year of publication began in 2001 and followed by Barbey Ak published 5 and received 163 citations with highest H-index. Where Johar SSh contributed to six publications and hence did not receive any citation.

Table 5 Author Impact

Author	Affiliations & Country	TP	TC	FY of Publication	H_index
Samsonovich Av	George Mason University, USA	13	112	2013	4
Johar Ssh	University Tun Hussein Onn Malaysia	6	0	2011	0
Barbey Ak	University of Illinois, USA	5	163	2009	5
Grafman J	Northwestern University, USA	5	159	2009	5
Colom R	Universidad Autónoma de Madrid, Spain	5	117	2009	4
Rodic A	University of Belgrade, Serbia	5	20	2014	3
Roberts Rd	American College Testing, USA	4	959	2001	4
Sunindijo Ry	University of New South Wales, Sydney	4	85	2007	3
Scheutz M	University of Regensburg, Germany	4	15	2017	3
Gerli F	Università Ca' Foscari, Italy	4	4	2017	1

TP = total publication, TC = total citation, FY= first year

3.7 Top 10 research journals

The top ten research journals according to publication enlisted in table 6. There are only 2 journals that have published more than 10 publications. It is noticeable that among ten journals, 7 of them were Quartile 1 category journals, and four journals were published from the United Kingdom, three from the USA, 2 from Switzerland, and 1 from Netherland. The journal "Personality and Individual Differences" ranked number 1 journal published from the United Kingdom with 13 publications and received highest citations (970) followed by "Frontiers in

Psychology" (Frontiers Media) journal publish from Switzerland with 11 publications with received 233 citations and categorize in quartile 1 journals. The journal publications range between 4 to 13, "Neuroimage" (Academic Press Inc) published 5 documents, where observed 3.2 impact factor which is the highest impact factor among other journals.

Table 6 Source Impact

Source	TP	TC	IF	Quartile	Publisher	Country
Personality And Individual Differences	13	970 (1)	2.31	Q1	Elsevier	United Kingdom
Frontiers In Psychology	11	233 (2)	2.06	Q1	Frontiers Media.	Switzerland
Biologically Inspired Cognitive Architectures	7	67 (6)	0.23	Q4	Elsevier	Netherlands
Neuroimage	5	157 (3)	3.21	Q1	Academic Press Inc	USA
Human Resource Management Review	4	110 (4)	2.32	Q1	Elsevier	United Kingdom
Human Resource Development Review	4	96 (5)	0.97	Q1	SAGE Publications Inc.	USA
Plos One	4	51 (7)	1.02	Q1	Public Library of Science	USA
Sustainability	4	23 (8)	0.56	Q2	MDPI AG	Switzerland
Management Research Review	4	21 (9)	0.51	Q2	Emerald	United Kingdom
European Journal Of Training And Development	4	20 (10)	0.38	Q2	Emerald	United Kingdom

3.8 Keyword analysis

The keywords analysis reveals that 45 different keywords were used by authors for EI research. Figure 4 shows a co-occurrence network of authors keywords that elaborated with a minimum occurrence of six keywords and 29 items containing eight clusters. The size and color of the ball represent the cluster size and strong network. A similar study conducted (Fahimnia et al., 2015) and (Olaleye, 2021) reveals that each cluster associate with EI is important but the first four clusters present as a central theme. The EI cluster interlink with affective computing, cultural intelligence, social intelligence, personality, emotional recognition, and many more. Affective computing is the second largest cluster that linkage with emotional recognition. The third cluster is human resources that linkage with intelligence, human resource, leadership.

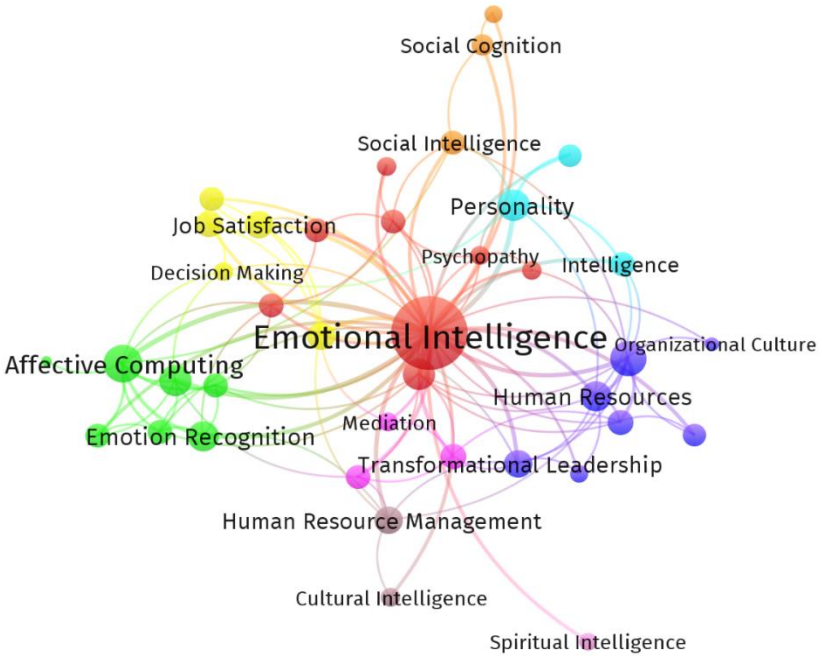


Fig.4. Co-occurrence network of author keywords

The list of the top 10 keywords trends in EI from 2000-2020 and 2019-2020 is shown in figure 5. The results in the figure show that ‘emotional intelligence is a prevailing topic and branch

of knowledge among other sub-areas/topics of EI. The top five authors keywords published during 2001-2020 were EI with 296 publications, emotion (45), affective computing (32), leadership 23, and artificial intelligence 18.

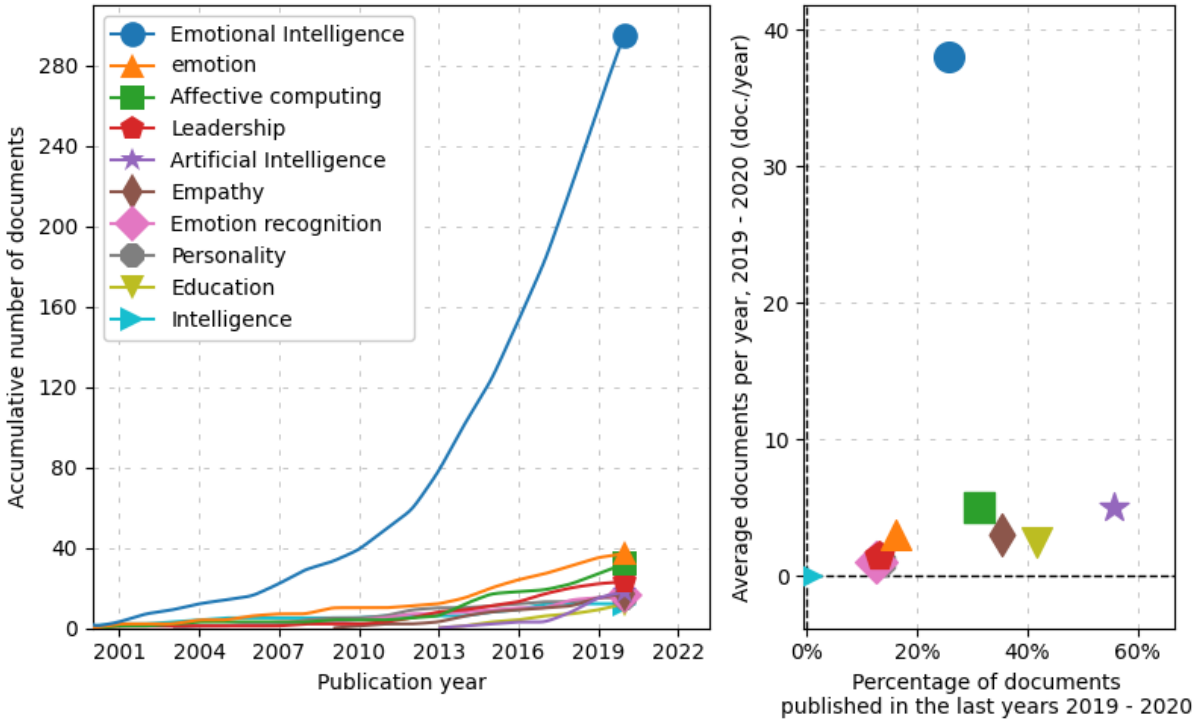


Fig.5. Co-occurrence of keywords from 2000-2020 and 2019-2020.

3.9 3-Factor analysis

3.9.1 Keywords, authors, and Country

Figure 6 expresses the publication relationship between keywords, author, and country. The 3-factor analysis indicates the top authors in EI, preferred keywords for publications, and countries associated. The sub-keywords indicate the keywords used by authors. Figure 7 shows the top 3 authors Barbey AK, Grafman J, and Colom R from the USA, 1 author Samsonovich AV

from Russia. They prefer to use sub-areas (EI, emotion, human robot interaction, affective computing) have strong relation with EI.

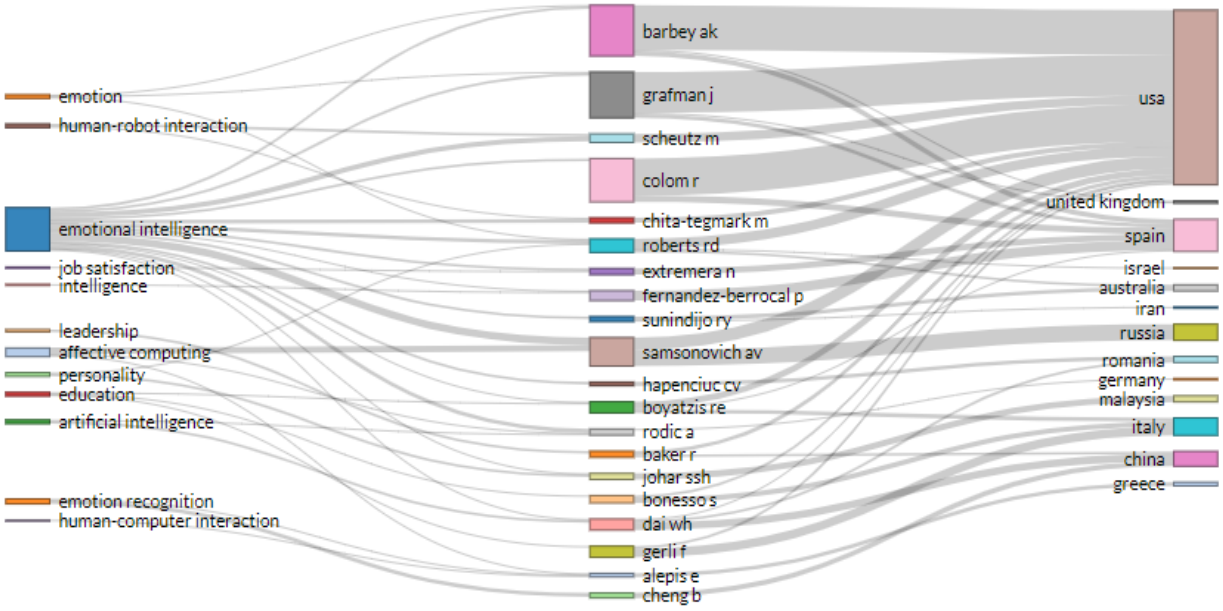
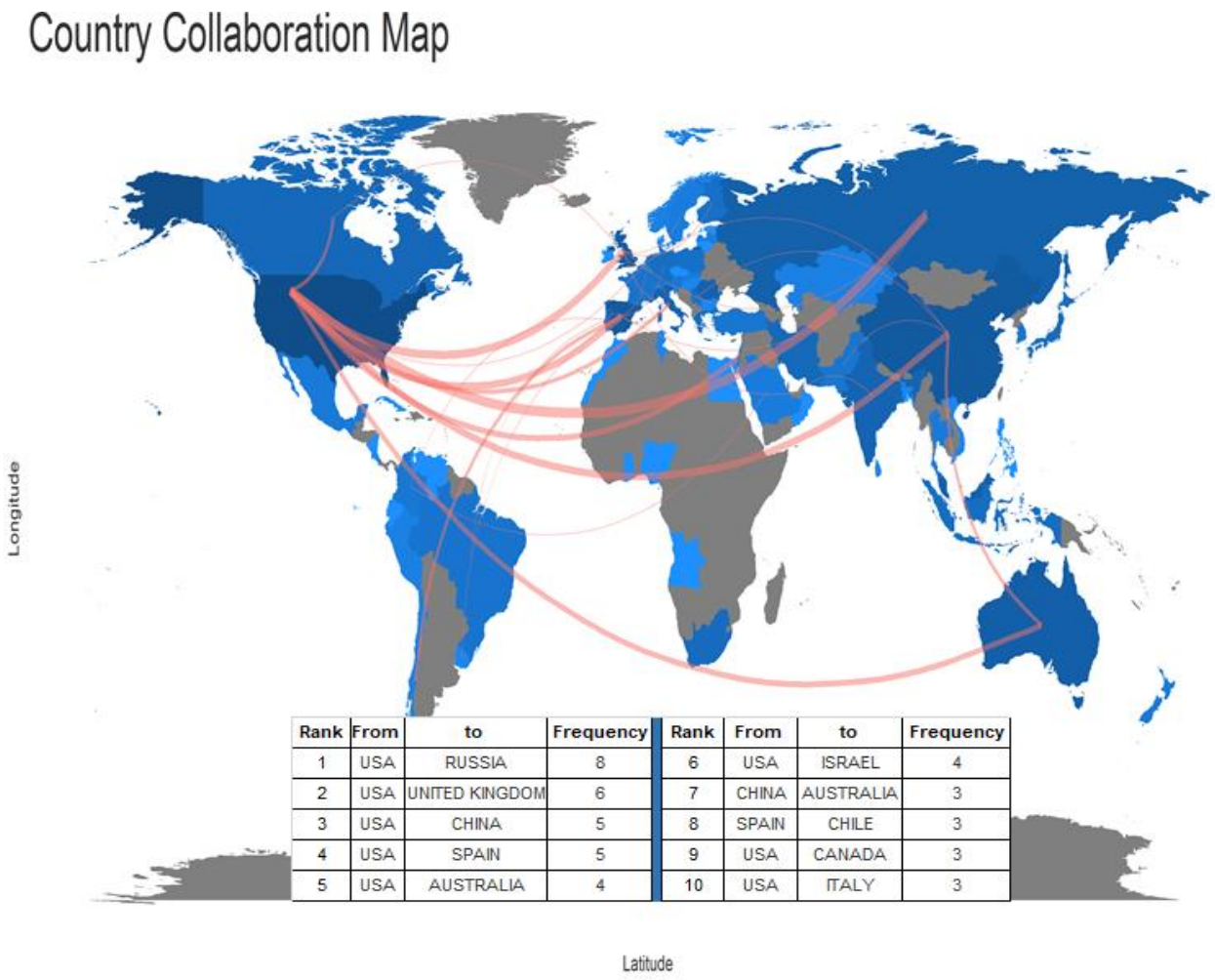


Fig.6. Relationship among keywords (left), author (middle), and countries (right), a 3-factor analysis.

3.10 Country collaboration map on EI research

Figure 7 depicts the countries' collaboration map on EI literature. The USA leads the publications collaboration in the field of EI. The USA as a top collaborator with Russia (8), followed the USA with UK (6), China (5), Spain (5). Other than the USA, China collaborates with Australia (3 publications) and Spain with Chili (3 publications).



Rank	From	to	Frequency	Rank	From	to	Frequency
1	USA	RUSSIA	8	6	USA	ISRAEL	4
2	USA	UNITED KINGDOM	6	7	CHINA	AUSTRALIA	3
3	USA	CHINA	5	8	SPAIN	CHILE	3
4	USA	SPAIN	5	9	USA	CANADA	3
5	USA	AUSTRALIA	4	10	USA	ITALY	3

Fig.7. Country collaboration map on EI literature

4. Discussion

The bibliometric investigation allows researchers to gauge the mechanism and structure of science. In this study, analyze current global research productivity trends in the field of EI during 2000-2020. The EI is the concept that flourished after 1990 and exceed by accepting idea by different fields of studies. There is noticeable growth seen in the publication of EI during 2017-2019 such publication growth had been check-in prospect of counties, authors, journals, institutions, keywords, countries collaboration.

4.1. Publication trend in Emotional Intelligence 2000-2020

The bibliographic search and retrieval of records from WOS indicated that papers related to the topic, i.e., emotion intelligence was start published from last three decades but the publication growth increased from 2000 with four publications. The results showed in figure 2 that the numbers of citations fluctuate every year where the number of publications on the topic of EI is continually increasing which is confirmed by the study (Akbey, 2018). It can be seen during the years 2001, 2002, and 2008 were the most influential years by received 1175, 1127, and 1115 citations respectively.

4.2. Top ten productive and cited countries

There was a total of 74 counties that contributed and published research on EI but the total contribution of the top ten-research producing countries account for 58% of total examined publications that reflect top developed countries' interest in publishing EI. Among them, the USA has contributed highest with 157 publications, 6752 citation count and received highest citation impact with 43.01%. The productivity, total citation, and citation impact of the USA are consistent with the study of (Bagheria et al., 2013) (Olaleye, 2021). The United Kingdom placed at 3rd among highly research producing country where placed 2nd highly influential country with 1925 citation and 36.32 citations impact. Countries' research output is based on many factors, Krishnan et al. (2020) conclude that countries' collaboration can improve research productivity in the field of EI.

4.3. Top authors, institutions, and international collaboration

The results concluded that most research producing author, institution, and collaboration in the field of EI affiliated with the USA, many academic institutions contributed by produced a high number of publications, citation, and collaboration partnership with other countries. A total

of 896 institutions contribute in publish EI. Among the list of top 10 research producing institutions, 3 universities situated in the USA, and rest of 7 universities belongs to 7 different countries. Among the top 10 research producing authors, 4 of them from the USA. It is noticeable that George Mason University (GMU), USA is the most research producing institution and Samsonovich Av is the top research producing author affiliated with GMU where Massachusetts Institute of Technology is a highly influential institution by received 1127 citations. Barbey AK is affiliated with the University of Illinois, USA both holding 3rd most research producing author and institution. Also Rodic A, University of Belgrade, Serbia falling in the top 10 research producing authors and institutions. The result of top 10 research collaborative countries indicated that USA is to most collaborative country by holding 8 positions.

4.4 Source impact and highly cited papers

The result showed that "personality and individual differences" is at the top in EI research producing journals, 13 publications received the highest 970 citations, and the article "on the dimensional structure of emotional intelligence" by Petrides and Furnham (2000) is one of the top 10 articles on EI. It's noticeable that among the top 10 research producing journals, the publisher and origin of 4 journals were from Elsevier, United Kingdom followed by USA 3 journals, and Switzerland 2 journals respectively. It can be seen from table 4, the journal "Neuroimage" has the highest IF: 3.21. The 7 out of 10 most preferred publication journals for EI are listed in the Q1 category, WOS. The authors' trend is to publish in high-impact journals, and the results showed that most of the influential journals are ranked in Q1 (7), Q2 (3), and Q4 (1) respectively.

Out of the top 10, an article by Picard et al. (2001) ranked first by receiving a total citation of 1181 in the field of EI. The factor of receiving high citation indicates that one of the indicators is publication year that affects citation count (Tahamtan et al., 2016). It can be understood that Picard et al. (2001) article was published in 2001, so the citation count is higher than any other top 10 article. Accordingly, six most cited article titles were published in emotional intelligence, one psychology, one human-computer interaction.

4.5 Use and frequency of keywords (2000-2018, 2019-2020)

The research study findings depicted that keywords determined the publication trend in any particular area (Saleem et al., 2021; Tran et al., 2019). The most used keywords determine and assist researchers to look for required articles on a specific field of knowledge (Hao et al., 2018; Khan et al., 2017). The result revealed that "emotions" and "emotional intelligence" keywords are most used and popular among different subject categories (Krishnan et al., 2020). The three-factor relationship among keywords, author, and affiliated countries showed that the top research producing authors determine the most useful keywords. The current study verified that emotional intelligence keyword is most used in research articles specifically published with the affiliation of USA.

5. Implication for Future research

The field of emotional intelligence (EI) is growing tremendously as it plays important role in every field of life. Therefore, authors with different educational backgrounds conducting studies on EI. The bibliometric theoretical implication of this study results indicated that as of now no solely WOS indexed journal available with the core idea to facilitate EI studies so it would be proposing an idea for publishers to initiate "journal of Emotional Intelligence".

The practical implication of the study revolves around the practitioners using EI ability and traits models instruments in an organization and institution's workplace context. The individuals who are working in higher-level managerial and leading roles or front line manager, as is advised by (Singh, 2009) the utilization of EI training can reduce workplace anxiety among leading executives. Kotsou et al. (2011) coined a question is there EI training duration and settings that create differential effect and improvement? Kotsou et al. (2019) reported EI training duration somehow affects results where a method of delivering training would lead to different exponential outcomes.

The findings of the current study suggest possible follow-on ideas and studies offer additional support. It would be beneficial to know the publication growth of each EI model on different WOS/Scopus subject categories. The mixed nature of EI studies can bring more transparent outcomes where the access ability and length of Genos, MSCEIT, or Wong EI instrument focused on the leadership and managerial level moderating questions and differentiate mixed and ability based models instruments into two different research studies (Carroll, 2017).

This study perhaps offered future researchers to collect more samples and compare data of different academic databases regardless of WOS and Scopus. The comparison between different academic database results will divulge the position of EI research domain and depth and productivity of academic databases research engines (Olaleye, 2021).

6. Limitation

This study aimed to cover all EI research studies to elaborate the current picture and status on the topic but due to the coverage of the data collected from WOS. The future study can bring a clearer picture by adding EI studies from different databases like Scopus, google scholar, journal citation reports (JCR), etc. Like other bibliometric research studies, some points limit the

study. Each database or collection of data at a different timespan can bring different results (Ye et al., 2020). Furthermore, new indicators like authorship patterns, journal's strongest citation bursts, can be chosen in the further study, which can explore the role and contribution of Open Access publication in the field of EI. Self–citation was not checked in this study, as no clear mechanism help to identify self-citation. Nevertheless, many fields and subjects have coverage of EI studies but still, many fields need to be a focus in the upcoming research.

7. Conclusions

The overall objective of the study was to determine the role of benefits of bibliometric study in the field of EI. The publication range is divided into 2 ranges –i.e., 2000-2016 and 2017-2020- whereby the significant increase in publication noticed during 2017 to 2019. Most of the research producing institutions, journals, authors, articles, and collaboration with the highest citation were from the USA. In the list of top-ranked journals, UK based journals taken major contribution where “Personality and Individual Differences” is a top-ranked journal. In the publication journey from 2000-2020, different authors contributed and published on EI. The top author in EI, based on research publication showed that Samsonovich Av (USA), Johar Ssh (Malaysia), and Barbey Ak (USA) stand out among other researchers by published 13, 6, and 5 respectively. Regarding institutions and universities, George Mason University, USA, and Islamic Azad University, Iran was the top producer institutes by published 13 and 9 documents. The analysis of the countries' research productivity indicates that the top 3 countries belong to the west which specifies that EI research is taken seriously in the USA, Spain, and the UK, where China from Asian country contributed well by 48 documents.

The most exciting aspect of this study revealed that top EI research producing author Samsonovich Av is affiliated with top research producing institution George Mason University

and top research producing county USA. The authors provided keyword indicated that emotional intelligent keyword that was used by 296 research publications, emotion (45), affective computing (32) respectively and that has shown that EI is the most likely world among other keywords.

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